

AD-A093 386

SCRIPPS INSTITUTION OF OCEANOGRAPHY LA JOLLA CA F/G 20/1
VARIABILITY IN SOUND TRANSMISSION THROUGH THE OCEAN INTERIOR.(U)
DEC 80 P WORCESTER, H MUNK, B D ZETLER N00014-75-C-0155

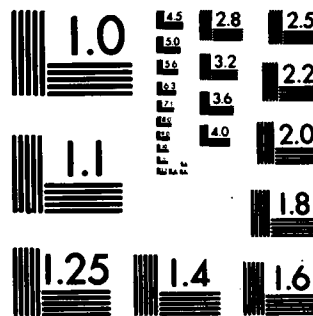
UNCLASSIFIED

NL

1 1 1
1 1 1
1 1 1



END
DATE
FILMED
1 8
DTIC



MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

UNIVERSITY OF CALIFORNIA, SAN DIEGO

BERKELEY • DAVIS • IRVINE • LOS ANGELES • RIVERSIDE • SAN DIEGO • SAN FRANCISCO



SANTA BARBARA • SANTA CRUZ

INSTITUTE OF GEOPHYSICS AND
PLANETARY PHYSICS, A 025
SCRIPPS INSTITUTION OF OCEANOGRAPHY ✓

LA JOLLA, CALIFORNIA 92093

December 9, 1980

AD A093386

Scientific Officer
Code 480
Office of Naval Research
800 North Quincy Street
Arlington, Virginia 22217

Dear Sir:

Enclosed please find our final technical report for contract
N00014-75-C-0155. The performance period for this contract was
11/1/74 through 7/31/80 and my co-principal investigators were W. H.
Munk, B. D. Zetler, and G. O. Williams.

Your support of our research work is greatly appreciated.

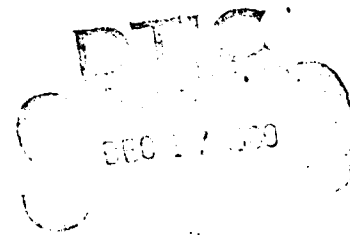
Sincerely yours,

Peter Worcester

Peter Worcester
Principal Investigator

/cw

cc: Robert Bachman, ACO
ONR Pasadena
Naval Research Lab, Code 2627
ONR Code 1021-P
Defense Documentation Center
SIO Contracts & Grants Office
IGPP Business Office



DDC FILE COPY

80 12 15 001
319 100 10

⑩ Peter / Worcester

W. H. / Munk B. D. / Zetler

G. O. / Williams ⑨

⑪ 4 December 1980

⑫ ⑬

⑥ FINAL REPORT

Variability in Sound Transmission Through the Ocean Interior

ONR Contract N00014-75-C-0155

↓ This report is a

⑮ which

The following list of references constitutes the final report on ONR Contract N00014-75-C-0155. These references were all either published or at least in part prepared under this contract. The references are in time order from earliest to latest.

- ↑
- F. Dyson, W. Munk and B. Zetler, "Interpretation of multipath scintillations Eleuthera to Bermuda in terms of internal waves and tides," J. Acoust. Soc. Am. 59, 1121-1133 (1976).
- W. H. Munk and P. F. Worcester, "Monitoring the ocean acoustically," Science, Technology, and the Modern Navy - Thirtieth Anniversary 1946-1976 (ONR-37), ONR, Arlington, Va., 497-508 (1976).
- C. H. McComas and F. P. Bretherton, "Resonant Interaction of Oceanic Internal Waves," J. Geophys. Res. 82, 1397-1412 (1977).
- W. H. Munk and G. O. Williams, "Acoustic oceanography," Nature 267, 774-778 (1977).
- P. F. Worcester, "Reciprocal acoustic transmission in a midocean environment," J. Acoust. Soc. Am. 62, 895-905 (1977).
- B. D. Zetler, "Tide predictions," Geophysical Predictions, Studies in Geophysics, NRC-NAS, Wash., D.C., 166-177 (1978).
- S. M. Flatté (Ed.), R. Dashen, W. H. Munk, K. M. Watson, F. Zachariasen, Sound Transmission Through A Fluctuating Ocean, Cambridge University Press, 299 pp. (1979).
- J. Cairns, W. Munk and C. Winant, "On the dynamics of neutrally buoyant capsules; an experimental drop in Lake Tahoe," Deep-Sea Res. 26A, 369-381 (1979).
- P. F. Worcester, "Reciprocal acoustic transmission in a midocean environment: Fluctuations," J. Acoust. Soc. Am. 66, 1173-1181 (1979).
- C. Garrett and W. Munk, "Internal waves in the ocean," Ann. Rev. Fluid Mech. 11, 339-369 (1979).
- W. Munk and C. Wunsch, "Ocean acoustic tomography: a scheme for large scale monitoring," Deep-Sea Res. 26A, 123-161 (1979).
- M. G. Brown, W. H. Munk, J. L. Spiesberger and P. F. Worcester, "Long-range acoustic transmission in the Northwest Atlantic," J. Geophys. Res. 85, 2699-2703 (1980).

p-2

319100

W. H.

J. L. Spiesberger, R. C. Spindel and K. Metzger, "Stability and identification of ocean acoustic multipaths," J. Acoust. Soc. Am. 67, 2011-2017 (1980).

W. Munk, P. Worcester and F. Zachariasen, "Scattering of sound by internal wave currents: The relation to vertical momentum flux," submitted to J. Phys. Oceanogr. (1981).

A